

Mr. Poulton exhibited crystals of formate of lead obtained by collecting the secretion of the larva of *Dicranura vinula* on 283 occasions. The secretion had been mixed with distilled water in which oxide of lead was suspended. The latter dissolved, and the acid of the secretion being in excess the normal formate was produced. Prof. Meldola promised to subject the crystals to combustion, so that their constitution would be proved by the final test.

Mr. Oliver Janson called attention to Mr. Pryer's new work, "Rhopalocera Nihonica," and to the fact that the illustrations had been executed by Japanese artists.—H. Goss, *Hon. Secretary*.

NOTE ON SOME BRITISH COCCIDÆ (No. 8).

BY J. W. DOUGLAS, F.E.S.

LECANIUM BEAUMONTIÆ, *n. sp.*

♀ scale oval or obovate, very convex, light brown, the surface closely covered with minute whitish dots; on each side, at some distance from either end and from each other, two more or less strong transverse ridges, outwardly going, almost at a right angle, to the margin, inwardly joined to a strong longitudinal dorsal ridge, which sometimes extends beyond them in a less degree to the anterior and posterior margin; the margin all round somewhat broad and flattened. On the dorsal ridge is a series (three or four) of conspicuous white tubercular points, sometimes in two rows, and the lateral ridges are similarly furnished; in some mature examples the lateral ridges are almost obsolete, but their position is indicated by the raised white points. Antennæ too imperfect to describe.

Considerably like *L. filicum*, but smaller, and very distinct from that and all other species by reason of the white points on all the ridges.

Length, 3, breadth, 1.75 mm.

On a young terminal shoot of *Beaumontia grandiflora*, a native of the East Indies, received from the Royal Gardens, Kew, in February, these scales were thickly clustered. The young scales were pale and moved about freely; the mature scales (of which there were but few) contained numerous white eggs. No male scales.

LECANIUM TESTUDO.

Coccus testudo, Curtis, Gard. Chron., 1843, p. 444, and fig.

"♀. Adult, oval, very convex, dark brown, and from the similarity to a tortoise, I have named this scale *Coccus testudo*: there is an elevated ridge along the back, with two transverse ones, the first being nearest the middle, the second towards the tail; the whole of the surface is finely shagreened, with small white tufts scattered over the whole. The under-side of the scale has a broadish margin, which is ciliated, and there is a long cleft at the tail; the skin of the body is concave, dark, with a purplish tinge, with six minute legs and a largish lobe towards the anterior portion, which is furnished with a fine proboscis" (Curtis, *l. c.*).

To this may be added—length, 3—4, breadth, 2—3 mm.; antennæ pale, 8-jointed; legs unicolorous with the body; the margin of the scale, seen from be-

neath, is not well described as "ciliated," for the hairs or spines are stout and not close together, and the "white tufts" on the surface are really waxen projecting granulations.

Curtis's description so well fits the insect I have before me, that I cannot do better than adopt it, with the foregoing small addition. His description was made, 43 years ago, from two examples on a leaf of *Brexia spinosa*, a native of Madagascar; the scale does not appear to have been identified since, until that by the kindness of the Director of the Royal Gardens at Kew, I received thence, in February, a specimen attached to a leaf of *Brexia madagascariensis*, and two others full of yellow eggs on a shoot of *Cratæva gynandra*. The ♂ is unknown.

Signoret, following Targioni-Tozzetti, thinks that *L. testudo* may be the same as *L. cycadis*, Boisd., which I know only by a single scale kindly given to me by Dr. Signoret, and which does not well agree with my scales of *L. testudo*, but I am not in a position to judge by one example. (Signoret gives the length of the scale of *L. cycadis* as "about 5 centimètres," which is surely a misprint for 5 millimètres). If there be but one species, Curtis's name is the older. I am not sure of the number of the joints in the antennæ of *L. testudo*, the concavity of the reversed scale being so great that a good view of the antennæ is not to be had without the destruction of the scale, which I cannot afford to effect. Signoret says nine joints in *L. cycadis*. The ♂ of *L. cycadis* is unknown.

My specimens of *L. testudo* are all but identical with scales of *L. oleæ*, Bernh., which I received from Professor Comstock, the chief apparent difference being that the white specks thereon are smaller than on mine. Signoret says the male of *L. oleæ* was unknown to him, although the female was common (Ess. Cochin., p. 271). Comstock states that although the ♀ was abundant on many trees in California, the ♂ was unknown. (Report for 1880, p. 336). *L. oleæ* has but eight joints in the antennæ.

Whatever may be the result of future investigations, the foregoing allusion to *Lecanium cycadis*, Boisd. (1867), gives opportunity to mention that the species appears to have been previously indicated by A. H. Haworth under the name of *Coccus palmæ*, in the "Transactions of the Entomological Society of London," vol. i, p. 307 (1812). The identity is the more assured in that Haworth's species evidently belongs to Signoret's very restricted "Série 5" of *Lecanium*, of which the leading character of the scale is "distinguished from all others by the rugose surface and the dorsal disc presenting one longitudinal and

two transverse carinæ" (Ess. Cochin., p. 268), and by the consideration that of the three species thus denominated (*L. cycadis*, *testudo*, and *oleæ*), *C. palmæ* quite agrees with *cycadis*. I subjoin Haworth's description:—

"*Palmæ. Coccus testa rufo-fusca unicolore, ovali-convexa rugulosa linea dorsali fasciisque duabus elevatis transversis.*

"Habitat in Palmæ foliis Horto Chelseiano, copiose. Pestis morbida, fæda.

"Long corp., 2 lin., lat., 1½."

Haworth gives as a doubtful synonym, "*Coccus aonidum*, Gmel., Syst. Nat., 2215, 2?" but the description is only that of Linné (which is not referred to) transposed, with one or two interpolations, and does not at all agree with that of Haworth; for instance, it has "Testa orbiculata, planiuscula, atro-purpurascens: centro s. vertice tuberculato, rotundo, rubro, in senescentibus aperto." This points to an Aspidiotid, not to a Lecanid, and Targioni and Signoret have so adopted *Coccus aonidum*, Linn., as the type of *Aonidia*, a new genus of *Diaspina*.

LECANIUM LONGULUM, n. sp.

♀ scale dingy pale yellowish-grey, elongate, narrow, ends broadly rounded, side margins slightly curved out, not recurved; surface smooth, transversely arched, longitudinally level semi-cylindric, not carinate, a band of faintly dark reticulation along the sides, whence, in some examples, faint dark lines radiate to the margin; the disc occupied with a long, pale, clear, oval spot; or in some mature specimens the scale is unicolorous yellow-brown, the dorsal pale spot partly or wholly covered and on the sides minute pale dots in place of reticulation. Under-side all pale, a broad space all round the insect, a conspicuous blackish eye-spot above each antenna. Antennæ of eight joints?: the 1st short; the 2nd longer, about the same length as the 4th; the 3rd longest of all; the 5th longer than the 4th, but not so long as the 3rd; the 6th, 7th and 8th shortest, the 8th longest of the three, which (especially the terminal) have all gradated sides. The 8th, indeed, simulates two joints, but the gradated structure and the want of colour make it impossible to determine with certainty whether or not there is a real articulation (fig.). Young larvæ under the scales. Length, 4—5, breadth 2—2.25 mm.



No male scales seen.

A scale remarkable for its length, narrowness, and semi-cylindric form.

On stems (rarely on the leaves) of *Acacia catechu*, from Mr. James O'Brien, Harrow; on the same plant, *Anona muricata* and *Myrica*

fragifera from the Royal Botanic Society's Gardens; and on *Averrhoa carambola* and *Spathophyllum blandum* from the Royal Gardens, Kew; all in February.

LECANIUM FUSCUM

Réaumur, Mém., iv, pl. v, fig. 2 (1740).

Chermes quercus rotundus fuscus, Geoffr., Hist. Ins., i, p. 507, 11 (1764).

Chermes quercus (nec Linn.), Fourcroy, Entom. Paris, i, p. 229, 11 (1785).

Coccus fuscus, Gmel., Syst. Nat., 13th ed., p. 2221, 33 (1788).

Nec Lecanium fuscus, Sign., Ess. Cochin., p. 250.

♀ form spheroid (diam. 6 mm.) or oblate-spheroid, the transverse diameter (7 mm.) being greater than the longitudinal (6 mm.), height in either case 5 mm. (the excised part of attachment subtracting from the sphere), constricted as if by a ligature close above the part of adhesion to the branch, but leaving a comparatively small orifice for attachment, more or less round according to the exigencies of its position on the shoot; pale yellow-brown, with an undefined yellowish band down the middle, the colour spreading out on each side of it in several small angles (eventually the colour of the scale is wholly light fuscous-brown); surface smooth, with a very few distant punctures somewhat in rows, and around the basal circumference many larger and deeper; the posterior cleft short, the superior opening in it small, obovate; anal point very small. Antennæ short, of six joints—1st short, 2nd more than twice as long, 3rd nearly twice as long as 2nd, 4th shorter than 2nd, 5th still shorter, 6th shortest of all with a few hairs attached. Larvæ yellowish, short broad-oval, antennæ of six joints.



No male scale seen.

Réaumur (*l. c.*) says—

“Fig. 2 est celle d’une petite branche d’un chêne ordinaire à laquelle tient une Gallinsecte plus grosse que le Kermes et qui est presque sphérique.”

This figure exactly represents the scale I have before me, even the median yellow band with jagged sides being indicated.

Geoffroy (*l. c.*) refers to Réaumur's figure, does not name his species, uses only the four words quoted above, and adds, “Il ne paroît pas différer de celui de l'orme.” But the resemblance to that species (*Lecanium ulmi*, Linn.) is remote, and this is confirmed by the opportune arrival on July 4th of some scales of *L. ulmi* just gathered from wych elm (*Ulmus montana*) at Alford, Lincolnshire, by Mr. James Eardley Mason, which quite corroborate my opinion, they being of less regular form, not so uniformly smooth, of a deep chestnut or piceous-brown colour, and with a large basal opening for attachment to the branch.

Fourcroy, who, in his "Entomologia Parisiensis," gave names to Geoffroy's insects, says of this species (*l. c.*)—

"No. 11. *C. quercus*, Le Kermes rond et brun du chêne. *C. quercus rotundus fuscus*."

The name given, taken as that of Linné, is incorrect, for Linné himself, in the "Systema Naturæ," p. 740, No. 5, refers his *Coccus quercus* to "Réaumur Ins., iv, t. 6, f. 1—4," adding "Habitat in *Quercu robore*;" but neither then, nor in the "Fauna Suecica," giving any description. Réaumur (*l. c.*) says of it, *i. e.*, of figs. 1—4, that it is "une Gallinsecte en forme de rein;" this in no way applies to the fig. 2 of pl. v, representing our *L. fuscum*, which, as he says, is "presque sphérique." This figure No. 2 is not referred to by Linné for any of his species of *Coccus*.

The name *fuscus* was first applied to this species by Gmelin in the 13th edition of Linné's "Systema Naturæ," where (*l. c.*) he has—

"*Coccus fuscus. C. quercus fuscus*, Modeer, Act. Goth., i, 24, 18. Geoffr. ins. par. i, 507, 11. Réaum. ins., iv, t. 5, f. 2.

Habitat in quercu robore, albo tomento obductus."

The last three words are an addition of his own, and refer, I presume, to the cottony matter enveloping the eggs and covered by the scale; they are not in the original of Geoffroy or Réaumur which are cited. The reference to Modeer is not correct, either as to the name or its applicability to the species of Geoffroy and Réaumur indicated. Modeer (*l. c.*) has—

"EK FÄSTFLYET (*Quercus roboris*). Female scale reniform, or as if with both ends curved together, dark brown, bedecked with a white powder. . . . Geoffroy calls this 'Fästfly' *Chermes quercus reniformis*."

This is equivalent to *Coccus quercus*, Linn., as before stated, and is not the *C. fuscus* here denoted.

In his "Essai sur les Cochenilles," p. 250, Signoret describes a *Lecanium fuscus* which he attributes to Geoffroy (meaning, no doubt, his "No. 11, *Chermes quercus rotundus fuscus*," cited above), yet at the same time he disallows that the figure in Réaumur's pl. v, fig. 2, cited by Geoffroy to illustrate his species, represents it. Thus he says—

"Dans notre Catalogue nous avons indiqué l'espèce de Réaumur, pl. v, fig. 2, comme étant le *fuscus*, Geoffroy, puisqu'il y renvoyait; mais la figure de Réaumur se rapporte à un autre type qui pourrait bien être le *L. Emerici*, Planchon, car il dit 'Elles sont très semblables, par leur figure et leur grosseur, au *Kermès*, et leur couleur est peu différente de celle du *Kermès* pâle.' Un peu plus loin il ajoute:— 'qui y tiennent (aux chênes) par une base circulaire qui a peu de diamètre,' tandis que, dans *fuscus*, c'est une sphère coupée en deux et par conséquent tenant à l'arbre par une large surface circulaire, ce qui se rapporte à Geoffroy disant qu'elle ressemble à celle de l'orme."

But, at p. 274 (under *Lecanium Emerici*, Planchon), Signoret says—

“ Dans le première parti de cet ouvrage (p. 23 and p. 250) je disais qu’ *Emerici* était connu et que c’était le *quercus* de Réaumur. En effet, planche v, fig. 2, il représente une espèce qui a la plus grande ressemblance avec *Emerici*; cependant, comme il indique les chênes ordinaires comme habitat, il est plus que probable que ce n’est pas le même.”

I agree with this; *Emerici*, and all the other allied species which Signoret refers to his genus *Kermes*, live only on *Quercus coccifera* or *Q. ilex* in the South of Europe, while *Lecanium fuscum* lives only on *Quercus robur*.

Signoret (*l. c.*) describes his *Lecanium fuscum* (of which he had only a single example, taken from an oak at Vienna) thus:—

“ Elle est d’un brun marron, fortement ponctuée sur les côtés, lisse sur les dos, demi-sphérique, un peu étranglée vers l’insertion sur la branche.”

Now, “une sphère coupée en deux,” or “demi-sphérique,” is not the “rond” of Geoffroy nor the “presque sphérique” of Réaumur, and a restricted meaning is placed upon the remark of Geoffroy, “Il ne paroît pas différer de celui de l’orme,” that the words do not warrant; therefore, whatever the “*fuscus*” of Signoret may be, it is not the species of Geoffroy, to whom he attributes it, nor of Réaumur, which is all that I am now concerned to show.

The conclusion of Planchon, as expressed by Signoret, p. 274, “La plus grande confusion n’a cessé de régner sur les espèces vivant sur le chêne, ce qui n’est pas étonnant, à cause de leur ressemblance” is very just.* It is now not possible in many cases to identify a species so surely as to be able to give due credit of priority of name, mainly by reason of the too succinct or imperfect description and account of similar species given by former authors. In fact, among the *Coccidæ*, especially in the *Lecanidæ*, where the appearance varies greatly during the course of the life of a species, the insect should be closely observed in all its stages, in order to form a correct idea of specific character.

On June 24th, Mr. G. C. Bignell, of Stonehouse, Devon, sent me, from an oak in his district, some scales, described above (six of the spheroid form and two of the oblate-spheroid), all, except this slight deviation, being otherwise exactly alike; and with them the following information:—

* “ Il régné à cet égard, dans les ouvrages des auteurs modernes, de singulières confusions. Les uns altèrent les vrais caractères du Kermès, en y ajoutant des particularités qui n’appartiennent qu’aux espèces voisines; d’autres, allant encore plus loin, négligent ces caractères pour y substituer ceux d’espèces différentes. De là résulte une confusion que peuvent seules faire cesser les observations directes.” Planchon “Le Kermès du chêne,” p. 17. Paris, 1864.

"In searching for oak galls yesterday I found the enclosed on the branches, mostly on or near the terminal bud of last year, that is, at the base of this year's growth, and they were on one tree only, as far as I could see. I opened one, and it appeared to be a mass of eggs, and I found some Hymenopterous larvæ feeding thereon."

About the middle of July a quantity of the larvæ of the *Lecanium* came out and moved rapidly about, and at the same time a few of the parasites appeared in the imago state; they are most probably *Blastothrix sericea*, Dalm., a species of *Encyrtidæ* obtained by Dalman from his *Coccus gibber* (*cf. infra*).

(To be continued).

SPHINX CONVULVULI IN NORFOLK, IN 1887.

BY CHAS. G. BARRETT, F.E.S.

When visiting Mr. Norgate at Downham last spring, I was greatly interested by his account of the extreme partiality shown by the larger hawk-moths for the flowers of *Nicotiana affinis* (white tobacco). He had seen several *Sphinx convolvuli* at one time flying round it in his own garden.

I had never seen that grand moth on the wing, nor did I possess a decent series, so took care to secure a nice lot of young plants of *Nicotiana affinis*, and get them forward by the time that all risk of night frosts was over. They were then planted in two rows at the back of beds of petunia and verbena respectively, and soon came into flower, so as to form, with their abundant opaque-white blossoms, a very effective background to these beds in the evening—though it must be confessed that in the day-time they were not equally pleasing, from a curious habit of closing many of their blossoms, and exhibiting only the dusky backs of the petals. Their perfume at night was delightful, and for the special purpose for which they were planted they must be pronounced an immense success.

On August 22nd, we were delighted by a sight of the first *Sphinx convolvuli*—excessively wild and shy. It was not then captured, nor on the following evening, when it (or another) appeared, but afterwards we had better success. From that time until last Friday (September 9th) specimens were seen almost every evening, and generally secured, and the total taken by my boys and myself exceeds a score. At the same time we hear of specimens taken in all directions: at rest in the day-time, or rushing wildly into houses at night, attracted by the lights or the flowers, and causing a desperate